

STUDIES IN THE EUPATORIEAE (ASTERACEAE). CLXXIX.
NOTES ON THE GENUS SYMPHYOPAPPUS.

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The genus Symphyopappus Turcz. has been subject to various interpretations over the years since its establishment but usually has been recognized by certain similarities of habit and by the presence of a compact capillary pappus that tends to fall as a unit with the upper callous of the achene. B. L. Robinson (1913) considered the genus to be inadequately defined but retained it and later added a number of species. Some years later Steyermark (1953) did reduce the genus to synonymy under Eupatorium but no further opinions were expressed until the review by the present authors (1971b) in which the genus was recognized and placed with five other genera in the distinctive Disynaphia group. Some of the species retained in the genus in the 1971 study had not been seen at that time and the resulting concept has needed some revision. The need for additional changes make a summary of the present genus necessary. Four species have been the source of problems. Two of these have been fully reviewed previously but can be summarized here along with the others. The characters of the genus and the Disynaphia complex are also worthy of review.

Symphyopappus leptophlebia was retained in the genus in the 1971 study. The species was compared to Eupatorium crenulatum Spreng. when it was described by B. L. Robinson (1931) and proves to belong with that species in the genus Raulinoreitzia (King & Robinson, 1977a).

Symphyopappus tetrastichus B. L. Robinson was also retained in the genus in the 1971 study though the original description was adequate to suggest otherwise. The species has been examined and proves to be a monotypic genus, Goyazianthus related to Brickellia and Leptoclinium in the subtribe Alomiinae (King & Robinson, 1977b).

Eupatorium catharinense Cabrera was transferred to Symphyopappus (King & Robinson, 1974) after examination of the holotype kindly loaned by the herbarium at La Plata. The type was somewhat immature but the only problem noted was the presence of 10 flowers per head rather than the 5 characteristic of the Disynaphia group. The position of the species has remained pro-

blematical until the recent reexamination of the microscope slide of the flowers. The flowers show hairs inside the corolla and remnants of hairs from the receptacle. These and other observed characters indicate the species belongs to the Critonioid genus Neocabreria K. & R. (1978).

Two Brazilian species, Liatris brasiliensis and L. trichotoma were described by Gardner in 1846 and 1847 respectively using the parenthetical name Leptoclinium. The latter was apparently intended to refer to the subgenus Leptoclinium established by Nuttall for a Florida species in the Liatris relationship. The name Leptoclinium was taken by Benthams (1873) and used at the generic level for one of the Gardner species and this led to the erroneous citation by King and Robinson (1969) of Leptoclinium (Gardner) Benthams in Benthams & J. D. Hooker with Liatris brasiliensis Gardner as the type species. It is now obvious that both the parenthetical Gardner and the typication are to be rejected. The genus Leptoclinium must take its origin from Benthams exclusively and must include only L. trichotomum which has the form of deciduous pappus and broadened style branches specified by Benthams.

The type specimen of Liatris brasiliensis has recently been seen through the courtesy of the British Museum and in addition to its original name it bears the designation Symphyopappus brasiliensis Sch.-Bip., a combination that never seems to have been published. Since the species proves to be a Symphyopappus the validation of the combination is given below. The species is a little unusual in the genus by the large spine-like setae on the achenes.

The removal of Eupatorium catharinense from the genus Symphyopappus restores the 5-flowered heads as a consistent characteristic of the genus and the Disynaphia group. The group is believed to warrant recognition at the subtribal level.

Disynaphiinae R. M. King & H. Robinson, subtribus nov. Plantae frutescentes vel subarborescentes; folia opposita vel alternata; squamae involucri subimbricatae; flores 5 in capitulo; corollae in lobis laeves vel sublaeves; filamenta superne in parietibus cellularum valde annulate ornata; basi stylorum glabri non nodulosi, rami stylorum lineares dense papilloși. Chromosomata numerus $X = 10$.

Type genus Disynaphia Hook. & Arn.

The subtribe contains six genera, Disynaphia,

Symphyopappus Turcz., Acanthostyles K. & R., Raulino-reitzia K. & R., Graziellia K. & R. and Campovassouria K. & R., and ranges from Uruguay north to Pernambuco in Brazil and west to eastern Bolivia. A key to the genera was provided by King and Robinson (1971a).

The genus Symphyopappus as presently understood has mostly glutinous leaves with glabrous midveins prominent rather than recessed on the upper surface. The inflorescences are corymbose with branches glabrous and bearing strongly decurrent ridges. The involucre usually bears 1-2 distinct dark linear bracts at the base. The genus contains the following 12 species.

Symphyopappus angustifolium Cabr., Nat. Mus. La Plata Bot. 19:191. 1959. Brazil.

Symphyopappus brasiliensis (Gardner) R. M. King & H. Robinson, comb. nov. Liatris brasiliensis Gardner, in Hook. Lond. Journ. Bot. 5:461. 1846. Brazil.

Symphyopappus casarettoi B. L. Robinson, Candollea 5: 170. 1934. Brazil.

Symphyopappus compressus (Gardn.) B. L. Robinson, Contr. Gray Herb. n. s. 80:12. 1928. Brazil.

Symphyopappus cuneatus Sch.-Bip. ex Baker, Mart. Fl. Bras. 6(2):367. 1876. Brazil.

Symphyopappus decussatus Turcz., Bull. Soc. Nat. Mosc. 21:584. 1848. Brazil.

Symphyopappus itatiayensis (Hieron.) R. M. King & H. Robinson, Phytologia 22:116. 1971. Brazil.

Symphyopappus lymanmithii B. L. Robinson, Contr. Gray Herb. n. s. 96:19. 1931. Brazil.

Symphyopappus myricifolius B. L. Robinson, Contr. Gray Herb. n. s. 68:6. 1923. Brazil.

Symphyopappus pennivenius B. L. Robinson, Contr. Gray Herb. n. s. 68:7. 1923. Brazil.

Symphyopappus reitzii (Cabr.) R. M. King & H. Robinson, Phytologia 22:116. 1971. Brazil.

Symphyopappus reticulatus Baker, Mart. Fl. Bras. 6(2): 367. 1876. Brazil.

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